LOW MOISTURE MUD FROM SOLID BOWL DECANTERS

By

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Abstract

THE HIGH moisture content of mill mud (typically 75–80% for Australian factories) results in high transportation costs for the redistribution of mud onto cane farms. The high transportation cost relative to the nutrient value of the mill mud results in many milling companies subsidising the cost of this recycle to ensure a wide distribution across the cane supply area. An average mill would generate about 100 000 t of mud (at 75% moisture) in a crushing season. The development of mud processing facilities that will produce a low moisture mud that can be effectively incorporated into cane land with existing or modified spreading equipment will improve the cost efficiency of mud redistribution to farms; provide an economical fertiliser alternative to more farms in the supply area; and reduce the potential for adverse environmental impacts from farms. A research investigation assessing solid bowl decanter centrifuges to produce low moisture mud with low residual pol was undertaken and the results compared to the performance of existing rotary vacuum filters in factory trials. The decanters were operated on filter mud feed in parallel with the rotary vacuum filters to allow comparisons of performance. Samples of feed, mud product and filtrate were analysed to provide performance indicators. The decanter centrifuge could produce mud cakes with very low moistures and residual pol levels. Spreading trials in cane fields indicated that the dry cake could be spread easily by standard mud trucks and by trucks designed specifically to spread fertiliser.

Introduction

Mud from the mud filters contains nutrients making it of value as a soil conditioner and substitute for commercial fertilisers but it also contains a large proportion of moisture (typically 75–80% in Australian factories).

Following an extensive assessment of the nutrient value of mill mud versus the application of commercial fertilisers, Qureshi *et al.* (2000) concluded that, for farms within 25 km of mills in the Central Queensland region, it was economical for farmers to apply mill mud (at 75% moisture) at rates up to 150 t/ha for substitution of commercial fertilisers.

The development of mud processing facilities that would produce a low moisture mud that could be spread onto cane fields with existing or modified spreading equipment will:

- Improve the cost efficiency of mud redistribution to farms broadly across the mill area;
- Provide an economical fertiliser alternative to more farms in the supply area; and
- Reduce the risk of environmental impact from farms.

It was proposed to investigate whether a solid bowl decanter could reduce the moisture of the final mud product without any extra loss of pol in the cake and without any increase in the level of mud solids recycled back to process with the filtrate.

Previous investigations

Hale *et al*. (1974) conducted factory trials on a decanter supplied by Sharples-Stokes. They concluded that one of the biggest problems was maintaining a high level of mud solids retention in the cake. They investigated feed conditioning options including the addition of lime to raise the pH, dilution of the feed and addition of flocculant and bagacillo to improve the retention. The most significant improvement was achieved with a high pH (~10) feed.

Stewart *et al*. (1974) conducted trials on a MercoBowl solid bowl centrifuge at another factory. This machine had facilities to add wash water at several positions along the inclined beach section.

A maximum pol recovery of 91% was achieved when dilution water was added to the feed. A higher pol recovery was possible when wash water was applied to the cake on the beach section but at the expense of reduced retention.

The amount of fibre in the mud affected the mud solids retention. Increasing the fibre ratio from about 0.27 to 0.4 improved the mud solids retention from 45–50% up to about 65%. The addition of flocculant improved the mud solids retention but did not affect pol recovery.

Stewart *et al*. (1975) showed that as flow rate through a solid bowl centrifuge increased, mud solids retention decreased. The pol loss was two to three times higher than that achieved by a rotary drum vacuum filter (RVF).

Stewart *et al*. (1976) investigated the effect of the finer bagacillo on the performance of the centrifuge. The performance of the MercoBowl was found to have improved significantly during the 1975 season compared with previous performances.

This improvement was shown to be a direct result of the finer bagacillo supply available from the new heavy duty shredder. Mud solids retention improved to above 90% even at high feed rates and the pol loss was reduced by about one third.

Danish Sugar & Sweetener Engineering (DSSE, 2004) was developing a decanter specifically for use on clarifier mud. Results provided by DSSE indicated the following:

- Cane quality and concentration of suspended solids had a significant effect on the capacity and pol loss;
- The use of a suitable flocculant was essential;
- The centrate was a clear lemon yellow juice;
- No bagacillo was necessary;
- The cake moisture averaged 58% over all tests; and
- The average cake pol was 3.2%.

Methodology

Factory trials were conducted to assess the potential of a solid bowl decanter centrifuge (SBC) to produce low moisture mud.

Two SBCs were tested. The first series of trials was conducted on a model P3400 SBC supplied by Alfa Laval.

The initial results of the P3400 indicated higher than acceptable pol losses and poor retention of the mud solids in the SBC so a second series of trials was conducted in the following year on a skid-mounted G2 40 decanter centrifuge unit also supplied by Alfa Laval.

The arrangement of the pilot plants for the factory trials is illustrated in Figure 1. The feed for the SBC was bled from the mud feed to the existing RVFs.

Hot flushing water was supplied at the top of the supply pipe. A magnetic flowmeter and resistance thermometer measured the flow rate and temperature of the mud feed to the SBC.

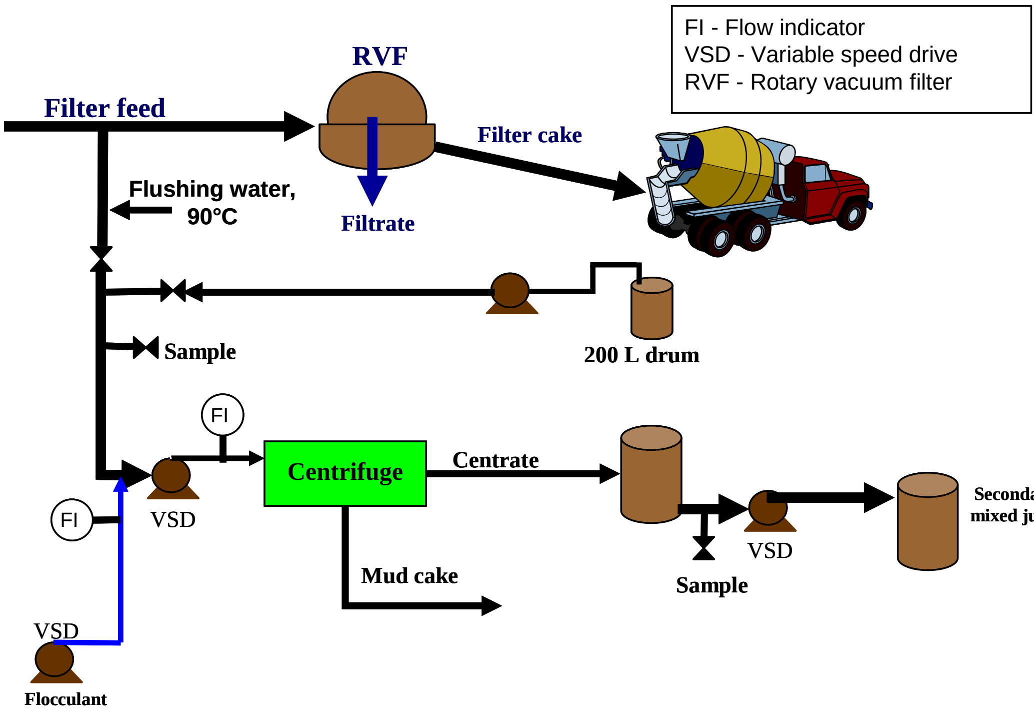

Fig. 1—Schematic of the pilot plant installation for the factory trials.

The centrate from the SBC was discharged to a small tank and then pumped to the secondary juice tank. The mud product was removed by a conveyor, stockpiled and finally removed by a front end loader at appropriate intervals.

Trials were conducted on both SBCs over a range of processing conditions. Some trials were conducted by collecting filter cake from the RVF, adding water to reconstitute the mud and then pumping the mud through the SBC. The mud was reconstituted in the mixer bowl of a concrete truck. Just enough water was added and mixed with the cake from the RVF to make the reconstituted mud fluid enough to flow to the SBC. The concept was to simulate conditions where a factory with limited filter area would process thicker cakes than optimum through the existing filter station and then reprocess the reconstituted mud through a SBC as a two-stage process to recover more sucrose and to produce a drier mud product.

The reconstituted mud was continuously discharged from the concrete truck and pumped to the centrifuge (as shown in Figure 1). Each batch from the concrete truck contained around 2.5 t of reconstituted mud and was sufficient to run the centrifuge at maximum rate (around 10–11 t/h) for about 15 minutes.

Stockpiled mud product from the centrifuge was loaded into a fertiliser truck and spread onto a nearby cane field to determine if there were issues with the transportability and spreadability of the low moisture mud.

Samples of feed and mud product from the RVFs and SBCs were collected during the trials and were analysed for pol, moisture, fibre and mud solids. Samples of centrate from the SBCs were also collected and analysed for pol, brix, purity and insoluble solids. During each trial, the bulk density and slump of the mud product was also tested. The slump was measured using concrete slump testing equipment (Anon., 1978; Anon., 1998). The slump of the mud product was measured to provide indications of the angle of repose and how easily the mud would flow from a mud truck.

Pilot equipment

The model P3400 decanter centrifuge supplied by Alfa Laval shown in Figure 2 had a rated capacity of 11 t/h of mud feed at 10% mud solids. The mud feed was introduced through a rotating scroll into a rotating bowl. The scroll rotated at a small differential speed to the bowl. The bowl was driven by a 30 kW motor at around 3200 r/min and the scroll was driven by a 4 kW back drive motor connected by a vee-belt to the gearbox. The unit had no facilities for internal washing of the mud product.

Fig. 2—The P3400 pilot centrifuge used during the factory trials.

The skid-mounted G2 40 decanter centrifuge unit supplied by Alfa Laval for the second series of trials is shown in Figure 3. The skid was a turnkey system and just required connection of three phase power and connections for water, mud feed and centrate and a conveyor to remove the mud cake.

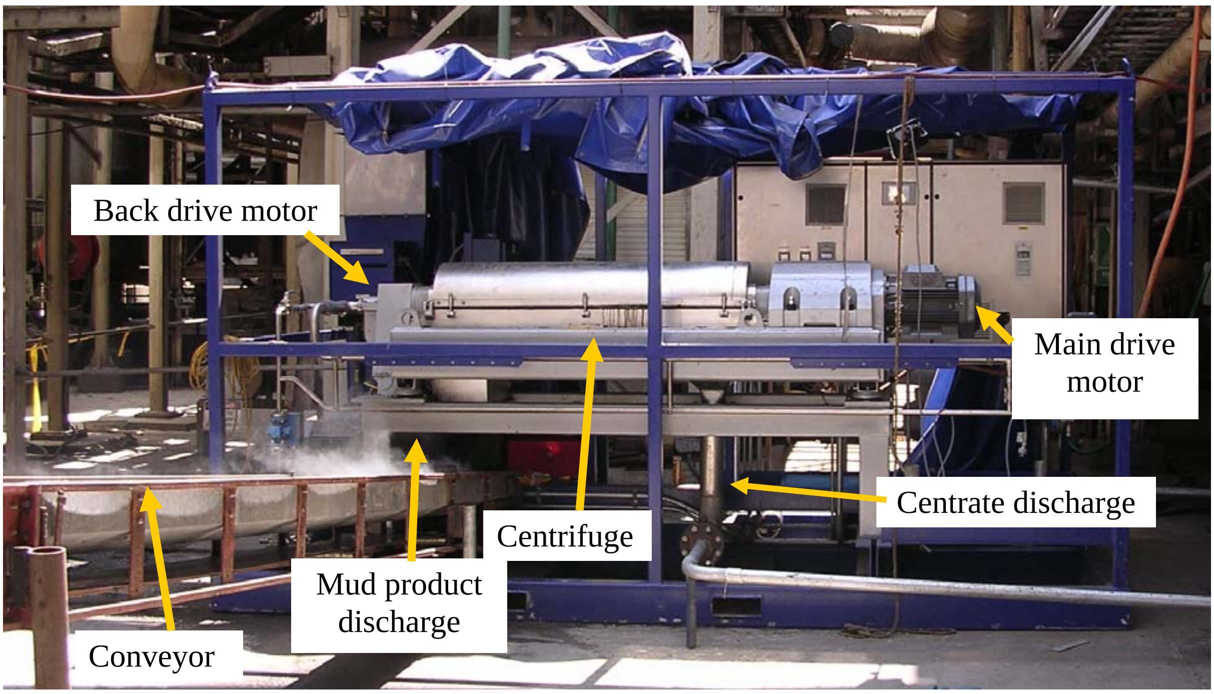

Fig. 3—The G2 40 decanter centrifuge used during the factory trials.

The G2 40 decanter had more instrumentation than the P3400 unit including an automatic polymer dosing rig, mud feed pump and magnetic flowmeters. It also had an internal baffle arrangement which was designed to press the dried mud product against the stator prior to discharge to achieve a further reduction in the final moisture content.

During the trials, the feed rate was adjusted between 3.7 and 8.0 t/h; however, for the majority of the trials where the effect of flow rate was not the object of investigation, the mud feed pump was set to deliver the maximum feed rate of 7–8 t/h. This was the capacity limit of the mud feed pump rather than the capacity limit of the centrifuge. The speed differential between the bowl and the scroll ranged between 8 and 27 r/min.

The most significant facility of the G2 40 was the torque monitoring instrumentation. The torque provides an indication of the degree of separation between the solids and the liquid within a centrifuge; the higher the torque, the better the separation.

By altering variables that increase the torque (usually speed differential between the bowl and the scroll), the operator is able to improve separation of the solid component from the liquid component for any given set of operating conditions.

The flocculant pump fed into a manifold which allowed the flocculant to be added into the feed at a number of locations prior to the centrifuge.

Factory trials

Solid bowl decanter centrifuge trials

P3400 centrifuge

A total of 33 trial conditions investigating combinations of speed differential (5 to 20 r/min), feed rate (2.6 to 8.7 t/h) and flocculant dose (Superfloc A2115 at 0 to 1320 ppm on mud solids in feed) were tested.

G2 40 centrifuge

During the trials on the G2 40 centrifuge, there was an emphasis on maximising the mud solids retention. The variables adjusted included the flocculant addition rate (600 to 2500 ppm on mud solids in the feed), the fibre ratio of the mud feed (0.25 to 0.6), the feed rate (3.7 to 8.0 t/h), and the differential speed between the bowl and the scroll (8 to 27 r/min). The centrifuge was used to process mud from the mud mixer and reconstituted mud from the RVF.

Sucrafloc 2320 flocculant was added to the mud feed at 89 to 336 litres per hour to achieve 600 to 2500 ppm on mud solids. It had been found that Sucrafloc 2320 was better suited for flocculating the mud than the Superfloc 2115 used for the P3400 trials.

Results and discussion

Rotary vacuum filter

Table 1 provides a summary of the results collected during the RVF trials. When dilution water was added to the clarifier underflow and wash water was turned off, a visible reduction in the moisture content of the cake was achieved. The final moisture of the cake reduced from 77–79% to 69–72%.

It appears that there is a distinct limit to the amount of water that can be removed. As the cake dries, the cake starts to crack and air passes through the cake and into the filtrate pipes. Once air starts passing through the cake, the vacuum reduces since the drum is no longer sealed.

In one test, the vacuum dropped to –15 kPa g compared to the typical vacuum of –70 kPa g. During this test, the cake thickness also increased from 6–8 mm under normal operation to 11–13 mm. Composite cake samples collected during the trials indicated that the pol % mud solids increased by an average 6.5 times when the wash water was off.

Table 1—ummary data from the RVF trials.

	Conditions	Wash water on	Wash water off
	Feed rate (t/h)	57.8	78.0
	Cake rate (t/h)	24.1	20.0
	Filtrate rate (t/h)	74.3	58.0
	Wash water (t/h)	40.7	0
	Wash water%cake	169	0.0
Mud feed analyses	Pol (%)	6.71	7.04
	Moisture (%)	86.1	85.8
	Fibre (%)	1.45	1.54
	Mud Solids (%)	4.52	4.49
	Fibre ratio	0.32	0.34
Cake analyses	Pol (%)	0.67	5.07
	Moisture (%)	78.3	70.6
	Fibre (%)	7.32	7.15
	Mud Solids (%)	13.6	15.85
	Fibre ratio	0.54	0.45
	Pol%mud solids	4.9	32.0
	Cake density (kg/m^3)	665	

Solid bowl decanter centrifuge trials

P3400 centrifuge trials

The trials with the P3400 centrifuge focussed on determining the minimum moisture content of the mud product achievable with a decanter centrifuge. Initial results indicated that 51.8% moisture was achieved but with a mud pol of 8.2. These results were obtained without attempting to minimise pol loss. The mud product was promising since it was highly spreadable but further work to improve the properties of the mud (pol and bulk density) was required.

The centrifuge also had poor retention of mud solids (around 50%). This meant that the fibre ratio of the mud product was high (around 0.7) and the bulk density was low. Increasing the mud solids retention and maintaining a high recovery of sugar is necessary to ensure the economic viability of the process.

Feed rate and weir depth settings in the decanter were found to be the most important variables affecting final moisture content. The driest mud product had a high proportion of fibre and was generally of low bulk density (median of 327 kg/m^3). The trials showed that the centrifuge could produce mud product between 47% and 61% moisture. Selected results of the trials with the P3400 centrifuge are shown in Table 2.

A summary of the results of the trials on the P3400 centrifuge follows:

- By decreasing the differential speed between the bowl and the scroll, a drier cake can be achieved but the solids loading of the centrate is increased. It was found that adjusting the differential speed had only a minor impact on the performance of the centrifuge.
- It was found that adjusting the weir depth had a profound effect on the moisture content of the cake and the mud solids loading in the centrate. By decreasing the weir depth, a drier cake could be produced but the resulting centrate had a higher solids loading as a consequence.
- The feed rate appeared to have a moderate effect on the performance of the centrifuge. The maximum feed rate was limited by the ability of the filtrate pump to

remove the centrate. The feed rate was measured by a magnetic flowmeter while the mud product rate was determined by weighing the cake falling from the conveyor with a large bucket and a stopwatch.

- The mud solids retention of the mud product was particularly poor; ranging between 47 and 90%. The average retention was 60.1%. The pol%mud solids was too high (28.6–42.5%) due to the absence of any facility to wash the cake.

The mud product generated from the centrifuge appeared to be attractive as garden compost. During the trials, stockpiles of mud disappeared, taken by various mill staff as compost. There seems to be an opportunity to value-add to the mud produced by the centrifuge as a feedstock for granulation or pelletising.

Many mills are battling with insufficient filter area to process adequately the mud flow. One option is to implement a two-stage process where the existing rotary drum filters comprise the first stage. The second stage would consist of a reconstitution phase where the cake is mixed with water and then fed to a decanter centrifuge. It was expected that the final mud pol could be significantly reduced.

Results from the mud reconstitution trials are shown in Table 2. The tests were successful in reducing the pol % mud solids to well below 1.0%. During the reconstitution trials, there was an increase in the moisture content of the mud product to 58–65%. This increase in moisture compared to trials with fresh mud from the mud mixer was in spite of the low weir setting which would normally be expected to provide the driest cake.

Table 2—Summary of trials using the P3400 decanter centrifuge.

	Feed type	Fresh mud from mud mixer				Reconstituted mud
	Mud feed rate (t/h)	6.70	5.65	8.50	8.90	8.20
	Cake rate (t/h)	0.70	0.55	1.29	1.12	1.14
Mud feed analyses	Pol (%)	11.63	11.74	11.74	11.02	0.01
	Moisture (%)	11.63	11.74	11.74	11.02	91.18
	Fibre (%)	1.44	1.64	1.64	1.47	2.59
	Mud Solids (%)	5.37	5.83	5.83	5.13	6.28
	Fibre ratio	0.27	0.28	0.28	0.29	0.41
	Flocculant rate (ppm MS)	0	0	848	835	0
Cake analyses	Pol (%)	7.98	7.21	8.05	8.11	0.36
	Moisture (%)	52.91	48.22	61.94	54.79	61.55
	Fibre (%)	16.44	19.01	9.08	14.63	17.40
	Mud Solids (%)	20.68	23.77	18.92	20.45	20.53
	Fibre ratio	0.79	0.80	0.48	0.72	0.85
	Pol%mud solids	38.6	30.3	42.6	39.7	1.7
	Density (kg/m^3)	326.0	327.0	444.0		315.5
Centrate analyses	Pol (%)	13.00	13.15	11.85	12.92	0.81
	Bx	14.79	14.90	13.57	14.75	1.03
	Pty (%)	87.9	88.2	87.3	87.6	75.3
	Insoluble Solids (%)	2.78	2.58	0.68	1.96	1.83
	Retention (%)	53.4	60.2	89.6	65.6	72.8
	Pol recovery	0.93	0.94	0.90	0.91	0.91

G2 40 centrifuge trials

The P3400 trials gave good results for final product moisture but poor results for mud solids retention and pol loss. The high pol loss was overcome by reconstituting the mud (albeit at the expense of product moisture).

Data from the trials by Stewart *et al.* (1974) indicated that greater than 97% mud solids retention was possible under certain conditions.

Averaged results of the trials with the G2 40 centrifuge are shown in Table 3 including results from the mud reconstitution trials. The main conclusions of the results for the G2 40 centrifuge are:

- When fed with mud from the mud mixer, the centrifuge was able to achieve 53–58% moisture cake;
- The cake moisture was low in spite of the high weir setting;
- Mud solids retention was close to 100%;
- The high mud solids retention is reflected in the low solids level in the centrate;
- The fibre ratio of the cake product reduced from 0.77 for the P3400 to 0.49 for the G2 40 because of the much improved retention of mud solids;
- The cake moisture and retention were independent of the feed rate;
- The pol loss remained at an unacceptably high level;
- Flocculant usage to achieve these results was high; and
- All centrates would be suitable for forward processing.

Table 3—Summary of trials using the G2 40 decanter centrifuge.

	Feed type	Fresh mud from mud mixer		Reconstituted mud
	Mud feed rate (t/h)	7.89	12.96	5.59
	Cake rate (t/h)	1.36	2.27	1.63
Mud feed analyses	Pol (%)	12.54	11.79	0.42
	Moisture (%)	79.2	79.9	89.6
	Fibre (%)	1.68	1.49	3.34
	Mud Solids (%)	5.01	5.30	6.41
	Fibre ratio	0.34	0.28	0.52
	Flocculant (ppm mud solids)	1228	648	1335
Cake analyses	Pol (%)	8.71	8.24	0.30
	Moisture (%)	55.70	54.35	69.57
	Fibre (%)	10.60	11.50	13.07
	Mud Solids (%)	22.75	23.90	17.00
	Fibre ratio	0.47	0.48	0.77
	Pol%mud solids	38.3	34.5	1.70
	Density (kg/m^3)	517.0	583.5	475.5
Centrate analyses	Pol (%)	13.50	12.30	0.38
	Bx	15.10	13.80	0.58
	Pty (%)	89.7	89.2	63.3
	Insoluble Solids (%)	0.005	0.14	0.38
	Retention (%)	99.95	98.35	97.23
	Pol recovery	0.93	0.93	0.93

A large amount of flocculant was used during the G2 40 trials even though Stewart *et al.* (1976) found that around 400 ppm gave adequate mud solids retention.

Increasing the fibre ratio, while improving the mud solids retention, had a detrimental effect on the final cake moisture as shown in Figure 4.

The following equation was developed to predict the final moisture content of the mud product.

$$\text{Final cake moisture (\%)} = 100 \text{ x } (0.455 \text{ x FR} + 0.417) \qquad (1)$$

where FR = fibre ratio of the mud feed to the centrifuge (dimensionless).

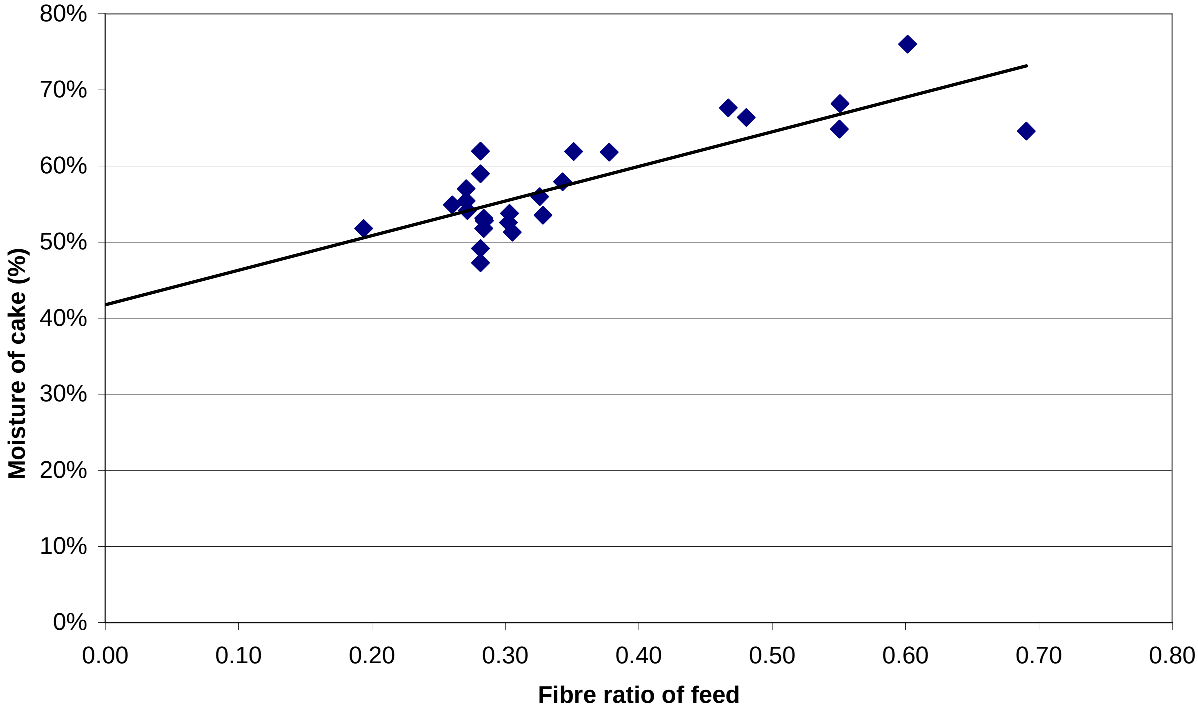

Fig. 4—Effect of the fibre ratio in the mud feed on final product moisture when mud is processed through a centrifuge.

Observations from the trials on reconstituted mud feed to the G2 40 include:

- Reconstituting the mud reduced the final pol loss significantly;
- The moisture of the cake was higher than the moisture achieved when fresh feed from the mud mixer was used; and
- Although there was a decline in the retention, the retention level was still acceptable.

Field distribution trials

The mud cake from the centrifuges appeared to have excellent spreadability characteristics. It was arranged to load a truck normally used to distribute gypsum and fertiliser with typical cake product from the centrifuge (i.e. 52–58% moisture) and spread it onto a nearby cane field (see Figure 5).

Fig. 5—Spreading centrifuge mud using a truck set up to spread fertiliser and gypsum.

One of the concerns of the spreading trials was that the mud would be blown away because the mud resembled a relatively fine powder. When the trial was performed, it was particularly windy; however, a good uniform layer of mud product remained on the ground.

The truck operator was satisfied with the spreading performance of the cake and considered this distribution method to be viable.

There was interest in how a standard mud truck would handle the dry cake from the SBCs. Truck operators would normally ensure that the cake was wet to prevent any difficulties during spreading operations.

Approximately 8–10 tonnes of cake generated by the centrifuge were loaded into a 15 tonne mud truck. The truck was then driven 10 km to a local farm where it was unloaded. It was thought compaction of the mud product on the journey may hinder its subsequent ability to be discharged uniformly from the truck.

However, once the mud began to move, the mud flowed smoothly and evenly from the truck until it was empty. The resulting mud layer was around 50 to 70 mm thick on the ground.

The lower bulk density of the mud product (400 to 600 kg/m^3) from a centrifuge is an important consideration for the logistics of transporting the mud back to the cane field. Assuming 12 tonnes of mud is presently removed with each truck, and the bulk density is 665 kg/m^3, 18 m^3 of mud is transported with each truck. This represents about 1.63 tonnes of mud solids (assuming 13.6 mud solids%cake).

It was found that 18 m^3 of centrifuged mud product (assuming the mud has been reconstituted) contains only 1.51 tonnes of mud solids. However, the weight of 18 m^3 of centrifuged mud is only 8.15 tonnes.

Consequently, the volume of the truck filled with mud would need to be increased to remove the same quantity of mud solids with each truckload. A truck with an increased capacity to carry 12 tonnes of the drier cake would remove 2.22 tonnes of dry mud solids, about 35% more mud solids in each load.

Conclusions

Tests on the RVFs indicated that the moisture of the cake could only be reduced to 69–72%. This could only be achieved when no wash water was applied to the cake. As the cake dried, excessive air entered the filtrate pipes through cracks in the cake and caused significant loss in vacuum. There was also a 7 to 10 fold increase in the pol loss when the wash water was turned off.

The results from the SBC trials using typical filter feed can be summarised as follows:

- The final cake product was a powder of relatively low density;
- Final cake moistures approaching 50% are possible;
- The pol loss was high because there were no washing facilities in either of the SBC machines tested; and
- The use of flocculant and bagacillo was essential to maintain a high retention of the mud solids.

The results from the SBC trials using reconstituted mud are summarised as follows:

- A feed with a minimum of 85% water is required to produce a feed with sufficient fluidity to feed to the decanter centrifuge;
- A very low pol loss is possible;
- The final cake moisture was slightly higher, due in part to the higher bagacillo content and the need to use a high dosage of flocculant;
- High retention levels are possible only if the feed is conditioned with a suitable flocculant and sufficient bagacillo.

There appear to be no disadvantages associated with the distribution of dry mud product onto cane fields using conventional mud trucks or trucks that are designed to broadcast fertilisers.

Acknowledgments

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DÉCANTEURS A BOL SOLIDE POUR PRODUIRE DES BOUES A FAIBLE TENEUR EN EAU

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MOTS CLEFS: Décanteur Boue, Solides, Humidité, Filtrer, Centrifuger.

Résumé

L'HUMIDITE élevée des boues de moulins (généralement 75 à 80% pour les usines australiens) cause de forts frais de transport pour la redistribution de la boue sur les champs de canne à sucre. Les frais de transport élevés par rapport à la valeur nutritive des boues rcent la subvention des frais de ce recyclage par la sucrerie. Un moulin moyen génère environ 100 000 tonnes de boue (à 75% d'humidité) en une saison. Le développement d'installations qui produiraient une boue à faible

teneur en eau et facilement intégrée au sol serait favorable à la rentabilité; cela donnerait aussi une alternative économique aux engrais et réduirait le risque d'effets environnementaux négatifs. Une étude pour évaluer les centrifugeuses à bol solide pour réduire l'humidité et le pol de la boue a été entreprise et les résultats compares a ceux de filtres rotatifs à vide existants dans les usines. Les centrifugeuses à bol solide ont traites la boue en parallèle avec les filtres rotatifs sous vide pour permettre des comparaisons de performances. Des échantillons de boue, de gâteau et de filtrat ont été analysés pour fournir des indicateurs de performance. La centrifugeuse à bol solide a produit des gâteaux avec des humidités et des pol très faibles. La dispersion des gâteaux dans les champs de canne à sucre a indiqué que le gâteau sec se propage facilement avec les camions standard et par des camions conçus pour répandre des engrais.

BAJA BARRO DE HUMEDAD DE SÓLIDOS CUENCO DECANTADORES

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**PALABRAS CLAVES: Lodos del Clarificador,
Sólidos, Humedad, Filtros, Centrífuga.**

Resumen

EL ALTO contenido de humedad de la cachaza (típicamente entre 75-80% en ingenios Australianos) da como resultado un alto costo de transporte durante su redistribución en las fincas cañeras. El alto costo de transporte relacionado con el valor nutritivo de la cachaza hace que muchas compañías azucareras subsidien este costo para asegurar la amplia distribución de la cachaza a lo ancho del área sembrada en caña. Un ingenio en promedio puede llegar a producir 100 000 t de cachaza con 75% de humedad durante la zafra. El desarrollo de un equipo que producirá cachaza de menor humedad que pueda ser incorporada adecuadamente a las tierras cañeras con los equipos existentes o con modificaciones en el equipo de dispersión incrementará la eficiencia en el costo de redistribución de la cachaza en las fincas cañeras, ofrecerá un fertilizante económicamente atractivo para la mayoría de las fincas en el área de suministro de caña, y reducirá el potencial impacto ambiental adverso desde las fincas. Se realizó una investigación para evaluar un decantador centrífugo sólido de canasta para producir cachaza con baja humedad y bajo pol residual los resultados fueron comparados con el desempeño obtenido en el existente filtro rotatorio al vacío en experimentos llevados a cabo en las fábricas. Los decantadores fueron operados sobre el filtro de alimentación de lodos en paralelo con el filtro rotatorio al vacío para permitir comparaciones sobre su desempeño. Los indicadores de desempeño fueron obtenidos a partir del análisis de muestras del alimento, los lodos, y el jugo filtrado. El decantador centrífugo podría producir una torta de cachaza con baja humedad y bajo pol residual. Los ensayos de dispersión en el campo indicaron que la cachaza seca podría ser esparcida fácilmente en los camiones de lodos típicamente usados o en camiones diseñados específicamente para esparcir fertilizantes.